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09/692,075	10/19/2000	Ken Harris	22176	6304

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EXAMINER

ANGEBRANDT, MARTIN J

ART UNIT	PAPER NUMBER
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1756

DATE MAILED: 09/20/2005

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**BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES**

Application Number: 09/692,075
Filing Date: October 19, 2000
Appellant(s): HARRIS, KEN

MAILED
SEP 20 2005
GROUP 1700

Maria M. Eliseeva (43,328)
For Appellant

EXAMINER'S ANSWER

This is in response to the appeal brief filed July 8, 2005 appealing from the Office action mailed June 6, 2004.

(1) Real Party in Interest

A statement identifying by name the real party in interest is contained in the brief.

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(2) Related Appeals and Interferences

The applicant states that there are no related appeals or interferences.

(3) Status of Claims

The statement of the status of claims contained in the brief is correct.

(4) Status of Amendments After Final

The appellant's statement of the status of amendments after final rejection contained in the brief is incorrect.

The amendment after final rejection filed on August 03/2004 has been entered.

(5) Summary of Claimed Subject Matter

The summary of claimed subject matter contained in the brief is correct.

(6) Grounds of Rejection to be Reviewed on Appeal

The appellant's statement of the grounds of rejection to be reviewed on appeal is correct.

(7) Claims Appendix

The copy of the appealed claims contained in the Appendix to the brief is correct.

(8) Evidence Relied Upon

No evidence is relied upon by the examiner in the rejection of the claims under appeal.

(9) Grounds of Rejection

The following ground(s) of rejection are applicable to the appealed claims:

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A) Claim 26 is rejected under 35 U.S.C. 103(a) as being unpatentable over IBM Technical Disclosure Bulletin Vol. 30(3) pp. 1392-1393 (08/1987), in view of Shvartsman '689 and Kataoka et al. JP 08-039572.

IBM Technical Disclosure Bulletin Vol. 30(3) pp. 1392-1393 (08/1987) teaches the formation of a holographic surface relief grating including spin coating a photosensitive polyimide to form a uniform coating (no seams), pre-baking at 85 degrees C, exposing the polyimide with light from a HeCd laser to record the holographic image (at room temperature), and a postbaking/development at 225 degrees C. The polyimide allows dry or wet development, which is disclosed as an advantage.

Shvartsman '689 describes the coating of a photohardenable film on a substrate , embossing a pattern into it , curing it while in contact, peeling and transferring the relief image in the photohardened film to another surface by stamping. (8/56-9/21) The use of roller or flat die shapes is disclosed. (9/22-55). See also the examples. Holograms can include images and or text stored holographically.

Kataoka et al. JP 08-039572 (machine translation attached) teaches the use of a patterned photosensitive polyimide on the interior surface of a mold. These are pre-heated at 50 degrees and post-baked at 240 degrees in the examples. [0031].

It would have been obvious to modify the process of IBM Technical Disclosure Bulletin Vol. 30(3) pp. 1392-1393 (08/1987) as discussed above, by forming a surface relief hologram in the photosensitive polyimide formed on the flat surface by contacting it with a relief holographic surface and partially curing it to hold the relief pattern, removing it from the relief pattern, postbaking it and later using it to replicate itself in other materials as stamping is disclosed as

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Shvartsman '689 and Kataoka et al. JP 08-039572 who establish that cured photosensitive layers, including polyimides are known to be useful as masters for stamping and molding and the teachings of the preexposure bake (solvent removal) and post exposure bake by Kataoka et al. JP 08-039572 and evidence of the use of embossing of the photosensitive layer and curing it while in contact with the master as taught by Shvartsman '689 as this allows more rapid hologram formation than using the exposure and development process of IBM Technical Disclosure Bulletin Vol. 30(3) pp. 1392-1393 (08/1987) as it obviates the use of a development step to achieve the relief image.

The applicant previously argued that spin coating as used in the IBM reference does not refer to the spin coating on the roller as contemplated by the claims. The applicant also argues that wet development is taught away from. The applicant also points out that heat curing is not taught by Shvartsman et al. The applicant also argues that the material of Shvartsman et al. cannot be imaged by light.

The examiner notes that claim 26 is not limited to spinning a roller and that the term "spin coating" is broader than argued by the applicant. The manner in which the applicant uses the term is unusual, but not repugnant to the accepted meaning of the language. The examiner notes that claim 26 does not even include a recitation of "spin coating", "wet development" or "heat curing" and therefore these arguments are not commensurate with the scope of coverage sought. The materials of Shvartsman are photoresist materials, in particular negative acting acrylate materials and inherently undergo hardening and insolubilization in response to light (4/1-15 in Shvartsman et al.). Therefore the argument that the Shvartsman materials cannot be imaged by light is flawed.

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B) Claims 28,33,35 and 43 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sassmannshausen et al. '768, in view of IBM Technical Disclosure Bulletin Vol. 30(3) pp. 1392-1393 (08/1987), Shvartsman '689, Kataoka et al. JP 08-039572, Fan et al. EP 0766142 and McGrew '030.

Sassmannshausen et al. '768 teaches the use of *positive acting polyimide* resists for fabricating relief structures useful in fabricating microelectronics and printing plates. (1/11-30). Processing of the polyimide resists includes coating, pre-baking at 50-120 degrees C, exposure (at room temperature), aqueous alkaline development and post-baking at 200-400 degrees C. (6/23-7/39).

Fan et al. EP 0766142 describes seamless resist coatings, which are useful for forming seamless printing plates. (5/9-17). The use of printing cylinders allows continuous printing. (2/30-34)

McGrew '030 discloses that the transfer layer may be a **photoresist** applied to the roller from a tank of liquid photoresist, which would not leave a seam in the photosensitive coating allowing continuous embossing (2/58-59) and is disclosed as useful in the printing arts. (4/26-38). The use of **positive resist** is disclosed (3/57-62) After development of the pattern, the pattern may be transferred into the underlying layer by etching. See figures 4-8 concerning light exposure of the resist.

It would have been obvious to one skilled in the art to modify the processes of Sassmannshausen et al. '768 including the pre-exposure and post exposure baking and using the resultant polyimide print surface to form an embossed grating surface in another surface based

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upon the use of polyimides to form gratings using interferometric exposure as evidenced by IBM Technical Disclosure Bulletin Vol. 30(3) pp. 1392-1393 (08/1987) and the use of polyimides and other resists to mold/emboss other soft materials as taught by Shvartsman '689, Kataoka et al. JP 08-039572 coated on rollers based upon the ability to perform continuous printing and to use the coating processes of McGrew '030 which are disclosed as useful in the printing arts by Fan et al. EP 0766142.

In addition to the response provided above, the examiner point to the fact that the Fan et al. EP 0766142 and McGrew '030 references teach the same roller coating process described by the applicant in the instant specification as "spin coating" and clearly indicate the seamless nature of the coating. Further the teachings of Fan et al. EP 0766142 and McGrew '030 serve to establish the analogous nature of the printing and embossing arts.

C) Claims 28,32,33,35 and 43 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sassmannshausen et al. '768, in view of IBM Technical Disclosure Bulletin Vol. 30(3) pp. 1392-1393 (08/1987), Shvartsman '689, Kataoka et al. JP 08-039572, Fan et al. EP 0766142 and McGrew '030, and further in view of Abraham '282.

Abraham '282 teaches the formation of dot matrix gratings or regular gratings in photoresists and the use of these as stampers. (3/11-50)

In addition to the basis provided above, the examiner holds that it would have been obvious to use the processes Sassmannshausen et al. '768 combined with IBM Technical Disclosure Bulletin Vol. 30(3) pp. 1392-1393 (08/1987), Shvartsman '689, Kataoka et al. JP 08-039572, Fan et al. EP 0766142 and McGrew '030., such as dot matrix holograms as the image to

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be formed in the stampers based upon the teachings of the formation of these holograms in stamper surfaces by Abraham '282.

D) Claims 28,33-36 and 43-44 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sassmannshausen et al. '768, in view of IBM Technical Disclosure Bulletin Vol. 30(3) pp. 1392-1393 (08/1987), Shvartsman '689, Kataoka et al. JP 08-039572, Fan et al. EP 0766142 and McGrew '030, and further in view of Hino et al. '469 and/or Hagan et al. '825.

Hino et al. '469 teach that if the heating temperature is below 400 degrees C, that imidization does not sufficiently proceed and that to correct for this curing takes place under a nitrogen atmosphere (8/1-14).

Hagan et al. '825 teach the use of negative polyimide resists which are aqueous developable (16/11-37). This is described as an advantage over other polyimides, which cannot use aqueous developers. The use of these compositions in forming microelectronics, photoresists and prinint plates is disclosed. (17/30-37).

It would have been obvious to modify the invention of Sassmannshausen et al. '768, combined with IBM Technical Disclosure Bulletin Vol. 30(3) pp. 1392-1393 (08/1987), Shvartsman '689, Kataoka et al. JP 08-039572, Fan et al. EP 0766142 and McGrew '030 as discussed above by curing under a nitrogen atmosphere to ensure sufficient imidization as taught by Hino et al. '469 and/or the use a negative polymide resist which shares the advantage that it is developable using a aqueous developer. There is no evidence that the polarity (negative acting or positive acting) of the polyimide has any advantage.

(10) Response to Argument

The applicant argues that the examiner has relied improperly upon “common knowledge and common sense” without support from the references. The examiner disagrees, noting that IBM Technical Disclosure Bulletin Vol. 30(3) pp. 1392-1393 (08/1987) and Shvartsman ‘689 are analogous due to their disclosures concerning the formation of holographic images in photoresist materials. IBM Technical Disclosure Bulletin Vol. 30(3) pp. 1392-1393 (08/1987) and Kataoka et al. JP 08-039572 are related due to their use of polyimide materials and the processing of polyimides. Shvartsman ‘689 and Kataoka et al. JP 08-039572 are related by their disclosed concerning the use of photoresist materials in molding/embossing resinous materials. Therefore the references used in the rejection of claim 26 are analogous, teach alternative resist materials for forming embossing surfaces having equivalent functionality and alternative means for forming the holographic relief pattern (ie exposure and development, vs partial curing in contact with a relief surface), conventional processing of polyimide materials (pre-exposure bake and post exposure baking) and present evidence leading one of ordinary skill in the art to a reasonable expectation of success in the performance of the modified process. The rejection stands.

B) The assertion that the Fan et al. references is uncombinable with the other references due to the low temperature of heating, neglects the essence of the rejection which uses a polyimide material which is processed at higher temperatures, rather than the resist specifically used in the

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examples of Fan et al., which deforms at high temperatures. It would not be reasonable to one skilled in the art to use processing conditions optimized for one resist, with another. Therefore the assertion that the heating of the other references is incongruent with the processing conditions of Fan et al. is misguided and misses the use of polyimides asserted in the rejection. The rejection stands.

(11) Related Proceeding(s) Appendix

No decision rendered by a court or the Board is identified by the examiner in the Related Appeals and Interferences section of this examiner's answer.

For the above reasons, it is believed that the rejections should be sustained.

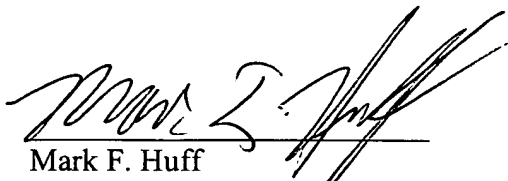
Respectfully submitted,



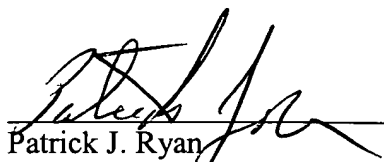
9/14/05

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